

# TDT4171

## ASSIGNMENT 8

### Parameters

`maxlen = data[«max_length»] // 16`

Feed forward model

Embedding: `input_dim = 1000, output_dim = 16`

Conv1D: `dim = 32, 3, activation = «relu»`

GlobalMaxPooling1D

Dense: `dim = 16, activation = «relu»`

Dense: `dim = 1, activation = «sigmoid»`

Epochs: 10

Recurrent model

Embedding: `input_dim = 1000, output_dim = 30`

LSTM: `dim = 30`

Dense: `dim = 1, activation = «sigmoid»`

Epochs: 5, Batch\_size: 32, Validation\_split: 0.2

## Result

Feed forward model

Test accuracy: 92.7%

Training time: 320s

```
Epoch 1/10
12283/12283 ————— 14s 1ms/step - accuracy: 0.8758 - loss: 0.2828
Epoch 2/10
12283/12283 ————— 14s 1ms/step - accuracy: 0.9246 - loss: 0.1849
Epoch 3/10
12283/12283 ————— 14s 1ms/step - accuracy: 0.9308 - loss: 0.1711
Epoch 4/10
12283/12283 ————— 14s 1ms/step - accuracy: 0.9342 - loss: 0.1644
Epoch 5/10
12283/12283 ————— 14s 1ms/step - accuracy: 0.9372 - loss: 0.1568
Epoch 6/10
12283/12283 ————— 14s 1ms/step - accuracy: 0.9393 - loss: 0.1528
Epoch 7/10
12283/12283 ————— 14s 1ms/step - accuracy: 0.9405 - loss: 0.1501
Epoch 8/10
12283/12283 ————— 14s 1ms/step - accuracy: 0.9425 - loss: 0.1462
Epoch 9/10
12283/12283 ————— 14s 1ms/step - accuracy: 0.9435 - loss: 0.1431
Epoch 10/10
12283/12283 ————— 14s 1ms/step - accuracy: 0.9441 - loss: 0.1410
4079/4079 ————— 1s 287us/step - accuracy: 0.9240 - loss: 0.1911
Model: Feedforward NN.
Test accuracy: 0.925
```

Recurrent model

Test accuracy: 92.7%

Training time: 320s

```
4. Training recurrent neural network...
Epoch 1/5
9827/9827 ————— 80s 8ms/step - accuracy: 0.8693 - loss: 0.3038 - val_accuracy: 0.9119 - val_loss: 0.2187
Epoch 2/5
9827/9827 ————— 80s 8ms/step - accuracy: 0.9165 - loss: 0.2040 - val_accuracy: 0.9239 - val_loss: 0.1879
Epoch 3/5
9827/9827 ————— 80s 8ms/step - accuracy: 0.9242 - loss: 0.1860 - val_accuracy: 0.9247 - val_loss: 0.1844
Epoch 4/5
9827/9827 ————— 80s 8ms/step - accuracy: 0.9291 - loss: 0.1754 - val_accuracy: 0.9269 - val_loss: 0.1930
Epoch 5/5
9827/9827 ————— 79s 8ms/step - accuracy: 0.9326 - loss: 0.1668 - val_accuracy: 0.9285 - val_loss: 0.1756
4079/4079 ————— 7s 2ms/step - accuracy: 0.9275 - loss: 0.1800
Model: Recurrent NN.
Test accuracy: 0.927
```